

SEQUENCE LISTING

<110> Hartley, James L.  
Brasch, Michael A.  
Temple, Gary F.  
Cheo, David

<120> Compositions and Methods for Use in  
Recombinational Cloning of Nucleic Acids

<130> 0942.4680003

<140> 09/517,466

<141> 2000-03-02

<150> US 60/122,389

<151> 1999-03-02

<150> US 60/126,049

<151> 1999-03-23

<150> US 60/136,744

<151> 1999-05-28

<160> 285

<170> PatentIn version 3.1

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ttttacgttt ctggttcagc ttttttgtac aaagttggca ttataaaaaa gcattgctca 180  
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<210> 117

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<222> (655)..(754)

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<222> (877)..(1686)

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<222> (1791)..(2364)

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ccg gta ccg aat tc  
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62

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50

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Ile Arg Tyr Arg Ile  
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cgg tac cga att cgc
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tca tgc atc gtc gac tgg atc cgg tac cga att cgc  
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84

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1 5 10 15

48

gac cta gtc gac tgg atc cgg tac cga att cgc  
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81

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<400> 210

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<400> 211

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aga tct gtc gac tgg atc cgg tac cga att cgc 81  
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<210> 213

<211> 26

<212> PRT

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<223> pENTR9 multiple cloning site

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<222> (1)..(87)

<223>

<400> 218  
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Leu Tyr Lys Lys Ala Gly Phe Glu Gly Asp Arg Thr Asn Ser Leu Arg  
1 5 10 15

48

aaa tac tta acc atg gtc gac tgg atc cgg tac cga att c  
Lys Tyr Leu Thr Met Val Asp Trp Ile Arg Tyr Arg Ile  
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88

<210> 219

<211> 29

<212> PRT

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<220>

<223> pENTR11 multiple cloning site

<400> 219

Leu Tyr Lys Lys Ala Gly Phe Glu Gly Asp Arg Thr Asn Ser Leu Arg  
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Lys Tyr Leu Thr Met Val Asp Trp Ile Arg Tyr Arg Ile  
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<210> 220  
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<222> (2)..(49)  
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<400> 220  
g aat tcg cgg ccg cac tcg aga tat cta gac cca gct ttc ttg tac aaa 49  
Asn Ser Arg Pro His Ser Arg Tyr Leu Asp Pro Ala Phe Leu Tyr Lys  
1 5 10 15  
g 50

<210> 221  
<211> 16  
<212> PRT  
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<223> pENTR11 multiple cloning site  
<400> 221  
Asn Ser Arg Pro His Ser Arg Tyr Leu Asp Pro Ala Phe Leu Tyr Lys  
1 5 10 15

<210> 222  
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<212> DNA  
<213> Artificial Sequence

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<223> pDEST1

<400> 222  
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aatttcacac aggaaacaga caggtatagg atcacaagtt tgtacaaaaa agctgaacga 120

<210> 223

<211> 153

<212> DNA

<213> Artificial Sequence

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<220>

<221> CDS

<222> (94)..(135)

<223>

<400> 223  
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gagcggataa caatttcaca caggaaacag acc atg tcg tac tac cat cac cat 114  
Met Ser Tyr Tyr His His His  
1 5  
cac cat cac ggc atc aca agt ttgtacaaaa aagctgaa 153  
His His His Gly Ile Thr Ser  
10

<210> 224

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> pDEST2

<400> 224

Met Ser Tyr Tyr His His His His His His Gly Ile Thr Ser  
1 5 10

<210> 225

<211> 153

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST3

<220>

<221> CDS

<222> (106)..(120)

<223>

<400> 225  
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gtggaattgt gagcggataa caatttcaca caggaaacag tattc atg tcc cct ata 117  
Met Ser Pro Ile  
1  
cta ggttattgga aaattaaggg ccttggtgcaa ccc 153  
Leu  
5

<210> 226

<211> 5

<212> PRT

<213> Artificial Sequence

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<223> pDEST3

<400> 226

Met Ser Pro Ile Leu  
1 5

<210> 227

<211> 102  
 <212> DNA  
 <213> Artificial Sequence

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 <220>  
 <221> CDS  
 <222> (10)..(63)  
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<400> 227  
 ctgggttcg cgt gga tct cgt cgt gca tct gtt gga tcc cca tca aca agt 51  
 Arg Gly Ser Arg Arg Ala Ser Val Gly Ser Pro Ser Thr Ser  
 1 5 10  
 ttg tac aaa aaa gctgaacgag aaacgtaaaa tgatataaat atcaatata 102  
 Leu Tyr Lys Lys  
 15

<210> 228  
 <211> 18  
 <212> PRT  
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<220>  
 <223> pDEST3  
 <400> 228  
 Arg Gly Ser Arg Arg Ala Ser Val Gly Ser Pro Ser Thr Ser Leu Tyr  
 1 5 10 15  
 Lys Lys

<210> 229  
 <211> 255  
 <212> DNA

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<220>

<223> pDEST4

<220>

<221> CDS

<222> (97)..(246)

<223>

<400> 229  
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tgtgagcgga taacaatttc acacaggaaa cagacc atg ggt cat cat cat cat 114  
Met Gly His His His His  
1 5  
cat cac gat tac gat atc cca acg acc gaa aac ctg tat ttt cag ggc 162  
His His Asp Tyr Asp Ile Pro Thr Thr Glu Asn Leu Tyr Phe Gln Gly  
10 15 20  
gcc cat atg agc gat aaa att att cac ctg act gac gac agt gat gac 210  
Ala His Met Ser Asp Lys Ile Ile His Leu Thr Asp Asp Ser Asp Asp  
25 30 35  
gat gac aag gta ccc atc aca agt ttg tac aaa aaa gctgaacga 255  
Asp Asp Lys Val Pro Ile Thr Ser Leu Tyr Lys Lys  
40 45 50

<210> 230

<211> 50

<212> PRT

<213> Artificial Sequence

<220>

<223> pDEST4

<400> 230

Met Gly His His His His His His Asp Tyr Asp Ile Pro Thr Thr Glu  
1 5 10 15  
Asn Leu Tyr Phe Gln Gly Ala His Met Ser Asp Lys Ile Ile His Leu  
20 25 30

Thr Asp Asp Ser Asp Asp Asp Asp Lys Val Pro Ile Thr Ser Leu Tyr  
35 40 45

Lys Lys  
50

<210> 231

<211> 204

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST5

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gataacaatt tcacacagga aacagctatg accatgatta cgccaagctc taatacgact 120  
cactataggg aaagctggta cgcctgcagg taccgggtccg gaattcccgg gtcgacgatc 180  
acaagtttgt acaaaaaagc tgaa 204

<210> 232

<211> 204

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST5

<400> 232  
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agaggatcca agcttacgta cgcgtgcatg cgacgtcata gctcttctat agtgtcacct 120  
aaattcaatt cactggccgt cgttttacaa cgtcgtgact gggaaaaccc tggcgttacc 180  
caacttaatc gccttgcagc acat 204

<210> 233

<211> 204

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST6

<400> 233  
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gtgacactat agaagagcta tgacgtcgca tgcacgcgta cgtaagcttg gacaccttag 120  
agcggccgcc gactagtgat cacaagtttg tacaaaaaag ctgaacgaga aacgtaaaat 180  
gatataaata tcaatatatt aaat 204

<210> 234

<211> 255

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST6

<400> 234  
tatttatatc attttacggt tctcggtcag ctttcttgta caaagtgggtg atcgtcgacc 60  
cggaattcc ggaccggtac ctgcaggcgt accagctttc cctatagtga gtcgtattag 120  
agcttggcgt aatcatgggc atagctgttt cctgtgtgaa attgttatcc gctcacaatt 180  
ccacacaaca tacgagccgg aagcataaag tgtaaagcct ggggtgccta atgagtgagc 240  
taactcacat taatt 255

<210> 235

<211> 306

<212> DNA

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<220>

<223> pDEST7

<400> 235  
ccattgacgc aaatgggcgg taggcgtgta cgggtgggagg tctatataag cagagctcgt 60  
ttagtgaacc gtcagatcgc ctggagacgc catccacgct gttttgacct ccatagaaga 120

caccgggacc gatccagcct ccggactcta gcctaggccg cggagcggat aacaatttca	180
cacaggaaac agctatgacc actaggcttt tgcaaaaagc tatttaggtg acactataga	240
aggtacgcct gcaggtaccg gtccggaatt cccatcacia gtttgtacaa aaaagctgaa	300
cgagaa	306

<210> 236

<211> 204

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST8

<400> 236	
cgtatactcc ggaatattaa tagatcatgg agataattaa aatgataacc atctcgcaaa	60
ttaaataagta ttttactgtt ttcgtaacag ttttgtaata aaaaaaccta taaatatcc	120
ggattattca taccgtccca ccatcgggcg cggatcatca caagtttgta caaaaaagct	180
gaacgagaaa cgtaaaatga tata	204

<210> 237

<211> 153

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST9

<400> 237	
ttggcgaggg acattaaggc gtttaagaaa ttgagaggac ctgttataca cctctacggc	60
ggtcctagat tgggtgcgta atacacagaa ttctgattgg atcccgggtcc gaagcgcgct	120
ttcccatcaa caagtttgta caaaaaagct gaa	153

<210> 238

<211> 204

<212> DNA

<213> Artificial Sequence



<220>

<223> pDEST10

<220>

<221> CDS

<222> (109)..(201)

<223>

<400> 238  
aaataagtat tttactgttt tcgtaacagt tttgtaataa aaaaacctat aaatattccg 60  
gattattcat accgtcccac catcgggcgc ggatctcggt ccgaaacc atg tcg tac 117  
Met Ser Tyr  
1  
tac cat cac cat cac cat cac gat tac gat atc cca acg acc gaa aac 165  
Tyr His His His His His His Asp Tyr Asp Ile Pro Thr Thr Glu Asn  
5 10 15  
ctg tat ttt cag ggc atc aca agt ttg tac aaa aaa gct 204  
Leu Tyr Phe Gln Gly Ile Thr Ser Leu Tyr Lys Lys  
20 25 30

<210> 239

<211> 31

<212> PRT

<213> Artificial Sequence

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<223> pDEST10

<400> 239

Met Ser Tyr Tyr His His His His His His Asp Tyr Asp Ile Pro Thr  
1 5 10 15  
Thr Glu Asn Leu Tyr Phe Gln Gly Ile Thr Ser Leu Tyr Lys Lys  
20 25 30

<210> 240

<211> 204

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST11

<400> 240  
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accgggaccg atccagcctc cgcggccccc aattcgagct cggtaaccgg ggatcctcta 120  
gagtcgaggt cgacggtatc gataagcttg atatcaacaa gtttgtacaa aaaagctgaa 180  
cgagaaacgt aaaatgatat aaat 204

<210> 241

<211> 255

<212> DNA

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<223> pDEST12.2

<400> 241  
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accgatccag cctccggact ctagcctagg ccgcggagcg gataacaatt tcacacagga 120  
aacagctatg accattaggc ctttgcaaaa agctatttag gtgacactat agaaggtacg 180  
cctgcaggta ccggtccgga attcccatca acaagtttgt acaaaaaagc tgaacgagaa 240  
acgtaaaatg atata 255

<210> 242

<211> 300

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST13

<400> 242  
tgggcaaacc aagacagcta aagatctctc acctaccaa caatgcccc ctgcaaaaaa 60  
taaattcata taaaaaacat acagataacc atctgcggtg ataaattatc tctggcggtg 120

ttgacataaa taccactggc ggtgatactg agcacatcag caggacgcac tgaccaccat 180  
gaaggtgacg ctcttaaaaa ttaagccctg aagaagggca gcattcaaag cagaaggctt 240  
tggggtgtgt gatacgaaac gaagcattgg gatcatcaca agtttgta aaaaagctga 300

<210> 243

<211> 120

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST14

<400> 243  
tgccggccac gatgcgtccg gcgtagagga tcgagatctc gatcccgcga aattaatacg 60  
actcactata gggagaccac aacggtttcc ctctagatca caagtttgta caaaaaagct 120

<210> 244

<211> 204

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST15

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<222> (1)..(1)

<223> may be any nucleotide

<220>

<221> CDS

<222> (106)..(120)

<223>

<400> 244

natcgagatc tcgatccgc gaaattaata cgactcacta tagggagacc acaacgggtt 60  
ccctctagaa ataattttgt ttaactttaa gaaggagata tacat atg tcc cct ata 117  
Met Ser Pro Ile  
1  
cta ggttattgga aaattaaggc ccttggtgcaa cccactcgac ttcttttgga 170  
Leu  
5  
atatcttgaa gaaaaatatg aagagcattt gtat 204

<210> 245

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> pDEST15

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<221> misc\_feature

<222> (1)..(1)

<223> may be any nucleotide

<400> 245

Met Ser Pro Ile Leu  
1 5

<210> 246

<211> 153

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST15

<220>

<221> CDS

<222> (70)..(99)

<223>

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cgtccatgg tcg aat caa aca agt ttg tac aaa aaa gct gaacgagaaa 109  
Ser Asn Gln Thr Ser Leu Tyr Lys Lys Ala  
1 5 10  
cgtaaaatga tataaatatc aatatattaa attagatttt gcat 153

<210> 247  
<211> 10  
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<220>

<223> pDEST15

<400> 247

Ser Asn Gln Thr Ser Leu Tyr Lys Lys Ala  
1 5 10

<210> 248  
<211> 153  
<212> DNA  
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<223> pDEST16 multiple cloning site

<220>

<221> CDS

<222> (100)..(111)

<223>

<400> 248  
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agaaataatt ttgtttaact ttaagaagga gatatacat atg agc gat aaa 111  
Met Ser Asp Lys  
1

attattcacc tgactgacga cagttttgac acggatgtac tc

153

<210> 249

<211> 4

<212> PRT

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<223> pDEST16 multiple cloning site

<400> 249

Met Ser Asp Lys  
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<210> 250

<211> 153

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<223> pDEST16 multiple cloning site

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<221> CDS

<222> (82)..(123)

<223>

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aacctggccg gttctgggtc t ggt gat gac gat gac aag atc aca agt ttg 111  
Gly Asp Asp Asp Asp Lys Ile Thr Ser Leu  
1 5 10

tac aaa aaa gct gaacgagaaa cgtaaaatga tataaatatc 153  
Tyr Lys Lys Ala

<210> 251

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> pDEST16 multiple cloning site

<400> 251

Gly Asp Asp Asp Asp Lys Ile Thr Ser Leu Tyr Lys Lys Ala  
1 5 10

<210> 252

<211> 153

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST17 multiple cloning site

<220>

<221> CDS

<222> (94)..(153)

<223>

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aattttgttt aactttaaga aggagatata cat atg tcg tac tac cat cac cat 114  
Met Ser Tyr Tyr His His His  
1 5

cac cat cac ctc gaa tca aca agt ttg tac aaa aaa gct 153  
His His His Leu Glu Ser Thr Ser Leu Tyr Lys Lys Ala  
10 15 20

<210> 253

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> pDEST17 multiple cloning site

<400> 253

Met Ser Tyr Tyr His His His His His His Leu Glu Ser Thr Ser Leu  
1 5 10 15

Tyr Lys Lys Ala  
20

<210> 254

<211> 420

<212> DNA

<213> Artificial Sequence

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<223> pDEST18 p10 Promoter

<400> 254  
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tcctcggttt tctggaaggc gagcatcggt tgttcgcca ggactctagc tatagttcta 120  
gtggttggct acgtatcgag caagaaaata aaacgccaaa cgcgttgagg tcttgtgtgc 180  
tatttttaca aagattcaga aatacgcac acttacaaca agggggacta tgaaattatg 240  
cattttgagg atgccgggac ctttaattca acccaacaca atatattata gttaaataag 300  
aattatttat caaatcattt gtatattaat taaaatacta tactgtaaat tacattttat 360  
ttacaatgag gatcatcaca agtttgtaca aaaaagctga acgagaaacg taaaatgata 420

<210> 255

<211> 300

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST19 39K Promoter

<400> 255  
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aaaaaaccgg ccagtttctt ccacaaactc gcgcacgggt gtctcgtaaa cttttgcgtc 120



gcaacaatcg cgatgacctc gtggtatgga aattttttct aaaaaagtgt cgttcatgtc 180  
ggcggcgggcg ttcgcgctcc ggtacgcgcg acgggcacac agcaggacag ctttgtccgg 240  
ctcgattatc ataaacaatc ctgcaggcat gcaagctgga tcatcacaag tttgtacaaa 300

<210> 256

<211> 204

<212> DNA

<213> Artificial Sequence

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<223> pDEST20 Polyhedron Promoter

<220>

<221> CDS

<222> (163)..(174)

<223>

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gcaaataaat aagtatttta ctgttttcgt aacagttttg taataaaaaa acctataaat 120  
attccggatt attcataccg tcccaccatc gggcgcggat cc atg gcc cct ata 174  
Met Ala Pro Ile  
1  
ctaggttatt ggaaaattaa gggccttgtg 204

<210> 257

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> pDEST20 Polyhedron Promoter

<400> 257

Met Ala Pro Ile  
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<210> 258

<211> 95

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST20 Polyhedron Promoter

<220>

<221> CDS

<222> (1)..(48)

<223>

<400> 258  
tcg gat ctg gtt ccg cgt cat aat caa aca agt ttg tac aaa aaa gct 48  
Ser Asp Leu Val Pro Arg His Asn Gln Thr Ser Leu Tyr Lys Lys Ala  
1 5 10 15  
gaacgagaaa cgtaaaatga tataaatatc aatatattaa attagat 95

<210> 259

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> pDEST20 Polyhedron Promoter

<400> 259

Ser Asp Leu Val Pro Arg His Asn Gln Thr Ser Leu Tyr Lys Lys Ala  
1 5 10 15

<210> 260

<211> 204

<212> DNA

<213> Artificial Sequence

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<223> pDEST21 Promoter region

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<221> CDS

<222> (163)..(180)

<223>

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attgttctcg ttccctttct tccttgtttc tttttctgca caatatttca agctatacca 120  
agcatacaat caactccaag cttgaagcaa gcctcctgaa ag atg aag cta ctg 174  
Met Lys Leu Leu  
1  
tct tct atcgaacaag catgcgatat ttgc 204  
Ser Ser  
5

<210> 261

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<212> PRT

<213> Artificial Sequence

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<223> pDEST21 Promoter region

<400> 261

Met Lys Leu Leu Ser Ser  
1 5

<210> 262

<211> 102

<212> DNA

<213> Artificial Sequence

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<223> pDEST21 Promoter region

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<221> CDS

<222> (37)..(78)

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<400> 262

gaagagagta gtaacaaagg tcaaagacag ttgact gta tcg tcg agg tcg aat 54  
Val Ser Ser Arg Ser Asn  
1 5

caa aca agt ttg tac aaa aaa gct gaacgagaaa cgtaaaatga tata 102  
Gln Thr Ser Leu Tyr Lys Lys Ala  
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<210> 263

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<400> 263

Val Ser Ser Arg Ser Asn Gln Thr Ser Leu Tyr Lys Lys Ala  
1 5 10

<210> 264

<211> 255

<212> DNA

<213> Artificial Sequence

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<223> pDEST22 Promoter region

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<221> CDS

<222> (217)..(228)

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255

<211> 4

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<223> pDEST22 Promoter region

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Met Pro Lys Lys  
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<210> 266

<211> 82

<212> DNA

<213> Artificial Sequence

 $\langle 220 \rangle$ 

<223> pDEST22

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Glu Gly Gly Ser Asn Gln Thr Ser Leu

1

5

tac aaa aaa gct gaacgagaaa cgtaaa  
Tyr Lys Lys Ala  
10

82

<210> 267

<211> 13

<212> PRT

<213> Artificial Sequence

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<223> pDEST22

<400> 267

Glu Gly Gly Ser Asn Gln Thr Ser Leu Tyr Lys Lys Ala  
1 5 10

<210> 268

<211> 102

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST23 T7 promoter

<400> 268

atcccgcgaa attaatacga ctactatag ggagaccaca acggtttccc tctagatcac 60  
aagtttgtag aaaaaagctg aacgagaaac gtaaaatgat at 102

<210> 269

<211> 153

<212> DNA

<213> Artificial Sequence

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<223> pDEST23 T7 promoter

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<221> CDS

<222> (61)..(126)

<223>

<400> 269

tttttatgca aaatctaatt taatatattg atatttatat cattttacgt ttctcggtca 60

gct ttc ttg tac aaa gtg gtg att atg tcg tac tac cat cac cat cac 108  
Ala Phe Leu Tyr Lys Val Val Ile Met Ser Tyr Tyr His His His His  
1 5 10 15

cat cac ctc gat gag caa taactagcat aacccttgg ggcctct 153  
His His Leu Asp Glu Gln  
20

<210> 270

<211> 22

<212> PRT

<213> Artificial Sequence

<220>

<223> pDEST23 T7 promoter

<400> 270

Ala Phe Leu Tyr Lys Val Val Ile Met Ser Tyr Tyr His His His His  
1 5 10 15

His His Leu Asp Glu Gln  
20

<210> 271

<211> 102

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST24 T7 promoter

<400> 271

atcgagatct cgatcccgcg aaattaatac gactcactat agggagacca caacggtttc 60

cctctagatc acaagtttgt acaaaaaagc tgaacgagaa ac 102

<210> 272  
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<223> pDEST24 T7 promoter  
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Ala Phe Leu Tyr Lys Val Val Ile Met Ser  
1 5 10  
cct ata cta ggttattgga aaattaaggg ccttgtgcaa ccactcgac tt 102  
Pro Ile Leu

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Ala Phe Leu Tyr Lys Val Val Ile Met Ser Pro Ile Leu  
1 5 10

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<223> May be any nucleotide

<400> 274

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ctagatcaca agtttgtaca aaaaagctga acgagaaacg ta 102

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Ala Phe Leu Tyr Lys Val Val Ile Met Ser Asp  
1 5 10

aaa att att cacctgactg acgacagttt tgacacggat gtactcaaag cg 102  
Lys Ile Ile

<210> 276

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Ala Phe Leu Tyr Lys Val Val Ile Met Ser Asp Lys Ile Ile  
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gcagagctcg tttagtgaac cgtcagatcg cctggagacg ccatccacgc tgttttgacc 180  
tccatagaag acaccgggac cgatccagcc tccggactct agcctaggcc gcggacc 237  
atg gcg tac tac cat cac cat cac cat cac tct aga tca aca agt ttg 285  
Met Ala Tyr Tyr His His His His His His Ser Arg Ser Thr Ser Leu  
1 5 10 15  
tac aaa aaa gct gaacgagaa 306  
Tyr Lys Lys Ala  
20

<210> 278

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<220>

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Met	Ala	Tyr	Tyr	His	His	His	His	His	His	Ser	Arg	Ser	Thr	Ser	Leu
1				5					10					15	

Tyr	Lys	Lys	Ala
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tagcctaggc cgcggacc atg gcc cct ata cta ggttattgga aaattaaggg	173
Met Ala Pro Ile Leu	
1 5	
ccttgtgcaa cccactcgac ttcttttgga atatcttgaa gaaaaatatg aagagcattt	233

gtatgagcgc gatgaagggtg at

255

<210> 280

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Met Ala Pro Ile Leu  
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1 5

54

aca agt ttg tac aaa aaa gct gaacgagaaa cg  
Thr Ser Leu Tyr Lys Lys Ala

87

10

<210> 282

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Val Pro Arg Ser Arg Ser Thr Ser Leu Tyr Lys Lys Ala  
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acaatttcac acaggaaaca gctatgacca ttaggcctat ttaggtgaca ctatagaaca 180  
agtttgtaca aaaaagcagg ctggtaccgg tccggaattc ccgggatatc gtcgacgagc 240  
tcactagtcg gcggccgctc tagagtatcc ctcgaggggc ccaagcttac gcgtaccag 300  
ctttcttgta caaagtgggc cctatagtga gtcgtattat aagctaggca ctggccgctc 360  
ttttacaacg tcgtgactgg gaaaactgct agcttgggat ctttg 405

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Met Ser Tyr Tyr His His His His  
1 5

cat cac ggc atc aca agt ttg tac aaa aaa gca ggc ttt gaa aac ctg 102  
His His Gly Ile Thr Ser Leu Tyr Lys Lys Ala Gly Phe Glu Asn Leu  
10 15 20

tat ttt caa gga acc atg gag aaa aaa atc act gga tat acc acc gtt 150  
Tyr Phe Gln Gly Thr Met Glu Lys Lys Ile Thr Gly Tyr Thr Thr Val  
25 30 35 40

gat 153  
Asp

<210> 285

<211> 41

<212> PRT

<213> Artificial Sequence

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<223> His6-CAT

<400> 285

Met Ser Tyr Tyr His His His His His His Gly Ile Thr Ser Leu Tyr  
1 5 10 15

Lys Lys Ala Gly Phe Glu Asn Leu Tyr Phe Gln Gly Thr Met Glu Lys  
20 25 30

Lys Ile Thr Gly Tyr Thr Thr Val Asp  
35 40

Sub  
E1